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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
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| 09/824,050 | 04/03/2001 | Akio Ito | 109135 | 9278 |

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EXAMINER

SHOSHO, CALLIE E

| | |
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| ART UNIT | PAPER NUMBER |
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1714

DATE MAILED: 09/30/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

| | | | |
|------------------------------|-------------------------------|----------------------------|--|
| Office Action Summary | Application No. 09/824,050 | Applicant(s) ITO ET AL. | |
| | Examiner Callie E. Shosho | Art Unit 1714 | |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 28 August 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 7,8,12 and 13 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 7,8,12 and 13 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s). _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ | 6) <input type="checkbox"/> Other: |

DETAILED ACTION

1. All outstanding rejections are overcome by applicants' amendment filed 8/28/03.

In light of the new grounds of rejection as set forth below, the finality of the previous office action mailed 3/28/03 has been withdrawn and the following action is non-final.

Claim Rejections - 35 USC § 103

2. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

3. Claims 7-8 and 12-13 are rejected under 35 U.S.C. 103(a) as being unpatentable over EP 465039 in view of Kurihashi et al. (U.S. 5,644,010) and Asai et al. (U.S. 5,446,082).

EP 465039 disclose printed product comprising image formed on substrate wherein the image is made with ink comprising colorant, monofunctional monomer such as hydroxyethyl methacrylate and difunctional monomer such as hexanediol di(meth)acrylate and polyethyleneglycol diacrylate (col.2, lines 2-3 and 14-17, col.2, line 57-col.3, line 7, col.3, lines 12-15 and 30-34, col.4, lines 7-10, col.5, line 27, and col.7, lines 8-10).

The difference between EP 465039 and the present claimed invention is the requirement in the claims (a) specific monofunctional monomer and bifunctional monomer and (b) that the image is formed on ink-receiving layer of substrate.

With respect to difference (a), it is noted that the present claims require monofunctional monomer which is hydroxybutyl acrylate or diethylene glycol methacrylate and difunctional

monomer which is diethyleneglycol diacrylate while EP 465039 discloses the use of hydroxyethyl methacrylate and hexanediol diacrylate or polyethyleneglycol diacrylate.

With respect to the monofunctional monomer, Kurihashi et al., which is drawn to liquid resin composition, disclose the use of hydroxybutyl acrylate or diethyleneglycol methacrylate for improving the cured film in water resistance and hardness. Kurihashi et al. also disclose the equivalence and interchangeability of hydroxybutyl acrylate or diethyleneglycol methacrylate, as presently claimed, with hydroxyethyl methacrylate as disclosed by EP 465039 (col.1, lines 9 and 13-14 and col.7, lines 32-35 and 41-43).

With respect to the bifunctional monomer, Kurihashi et al. disclose the use of diethyleneglycol diacrylate in order to impart curability to the liquid resin. Kurihashi et al. also disclose the equivalence and interchangeability of diethyleneglycol diacrylate, as presently claimed, with hexanediol diacrylate or polyethyleneglycol diacrylate, as disclosed by EP 465039 (col.4, lines 6-7, col.6, lines 19-30, col.9, lines 62-63 and 66, and col.10, line 1).

In light of the above, it therefore would have been obvious to one of ordinary skill in the art to use hydroxybutyl acrylate or diethylene glycol methacrylate and diethyleneglycol diacrylate in EP 465039 in order to impart curability to the liquid resin and produce cured film with good water resistance and hardness, and thereby arrive at the claimed invention.

With respect to difference (b), EP 465039 discloses forming image on substrate but there is no explicit disclosure that the substrate comprises ink-receiving layer.

Asai et al. disclose ink jet recording medium comprising image or ink receiving layer comprising polyester that has glass transition temperature of 40-70 °C. The motivation for using

such recording medium is to obtain high quality images superior in color density, color reproducibility, and sharpness (col.1, lines 25-31 and col.3, lines 49-55).

In light of the motivation for using recoding medium with ink-receiving layer disclosed by Asai et al. as described above, it therefore would have been obvious to one of ordinary skill in the art to form image in EP 465039 on substrate which comprises such ink-receiving layer in order to high quality images superior in color density, color reproducibility, and sharpness, and thereby arrive at the claimed invention.

4. Claims 7-8 and 12-13 are rejected under 35 U.S.C. 103(a) as being unpatentable over GB 2318356 in view of Kurihashi et al. (U.S. 5,644,010) and Asai et al. (U.S. 5,446,082).

GB 2318356 disclose printed product comprising image formed on substrate wherein the image is made with ink comprising colorant, monofunctional monomer such as hydroxyethyl methacrylate and difunctional monomer such as hexanediol di(meth)acrylate. It is disclosed that the monofunctional monomer is used either alone or in combination with the difunctional monomer (page 1, lines 4-6, page 3, lines 22-26, page 4, lines 21-25, page 5, line 19 and 29, and page 8, line 32-page 9, line 6).

The difference between GB 2318356 and the present claimed invention is the requirement in the claims (a) specific monofunctional monomer and bifunctional monomer and (b) that the image is formed on ink-receiving layer of substrate.

With respect to difference (a), it is noted that the present claims require monofunctional monomer which is hydroxybutyl acrylate or diethylene glycol methacrylate and difunctional

monomer which is diethyleneglycol diacrylate while GB 2318356 discloses the use of hydroxyethyl methacrylate and hexanediol diacrylate.

With respect to the monofunctional monomer, Kurihashi et al., which is drawn to liquid resin composition, disclose the use of hydroxybutyl acrylate or diethyleneglycol methacrylate for improving the cured film in water resistance and hardness. Kurihashi et al. also disclose the equivalence and interchangeability of hydroxybutyl acrylate or diethyleneglycol methacrylate, as presently claimed, with hydroxyethyl methacrylate as disclosed by GB 2318356 (col.1, lines 9 and 13-14 and col.7, lines 32-35 and 41-43).

With respect to the bifunctional monomer, Kurihashi et al. disclose the use of diethyleneglycol diacrylate in order to impart curability to the liquid resin. Kurihashi et al. also disclose the equivalence and interchangeability of diethyleneglycol diacrylate, as presently claimed, with hexanediol diacrylate, as disclosed by GB 2318356 (col.4, lines 6-7, col.6, lines 19-30, col.9, line 66, and col.10, line 1).

In light of the above, it therefore would have been obvious to one of ordinary skill in the art to use hydroxybutyl acrylate or diethylene glycol methacrylate and diethyleneglycol diacrylate in GB 2318356 in order to impart curability to the liquid resin and produce cured film with good water resistance and hardness, and thereby arrive at the claimed invention.

With respect to difference (b), GB 2318356 discloses forming image on substrate but there is no explicit disclosure that the substrate comprises ink-receiving layer.

Asai et al. disclose ink jet recording medium comprising image or ink receiving layer comprising polyester that has glass transition temperature of 40-70 °C. The motivation for using

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such recording medium is to obtain high quality images superior in color density, color reproducibility, and sharpness (col.1, lines 25-31 and col.3, lines 49-55).

In light of the motivation for using recoding medium with ink-receiving layer disclosed by Asai et al. as described above, it therefore would have been obvious to one of ordinary skill in the art to form image in GB 2318356 on substrate which comprises such ink-receiving layer in order to high quality images superior in color density, color reproducibility, and sharpness, and thereby arrive at the claimed invention.

5. Claims 7-8 are rejected under 35 U.S.C. 103(a) as being unpatentable over EP 465039 in view of Kurihashi et al. (U.S. 5,644,010) and Ito et al. (U.S. 5,912,085).

EP 465039 disclose printed product comprising image formed on substrate wherein the image is made with ink comprising colorant, monofunctional monomer such as hydroxyethyl methacrylate and difunctional monomer such as hexanediol di(meth)acrylate and polyethyleneglycol diacrylate (col.2, lines 2-3 and 14-17, col.2, line 57-col.3, line 7, col.3, lines 12-15 and 30-34, col.4, lines 7-10, col.5, line 27, and col.7, lines 8-10).

The difference between EP 465039 and the present claimed invention is the requirement in the claims (a) specific monofunctional monomer and bifunctional monomer and (b) that the image is formed on ink-receiving layer of substrate.

With respect to difference (a), it is noted that the present claims require monofunctional monomer which is hydroxybutyl acrylate or diethylene glycol methacrylate and difunctional monomer which is diethyleneglycol diacrylate while EP 465039 discloses the use of hydroxyethyl methacrylate and hexanediol diacrylate or polyethyleneglycol diacrylate.

With respect to the monofunctional monomer, Kurihashi et al., which is drawn to liquid resin composition, disclose the use of hydroxybutyl acrylate or diethyleneglycol methacrylate for improving the cured film in water resistance and hardness. Kurihashi et al. also disclose the equivalence and interchangeability of hydroxybutyl acrylate or diethyleneglycol methacrylate, as presently claimed, with hydroxyethyl methacrylate as disclosed by EP 465039 (col.1, lines 9 and 13-14 and col.7, lines 32-35 and 41-43).

With respect to the bifunctional monomer, Kurihashi et al. disclose the use of diethyleneglycol diacrylate in order to impart curability to the liquid resin. Kurihashi et al. also disclose the equivalence and interchangeability of diethyleneglycol diacrylate, as presently claimed, with hexanediol diacrylate or polyethyleneglycol diacrylate, as disclosed by EP 465039 (col.4, lines 6-7, col.6, lines 19-30, col.9, lines 62-63 and 66, and col.10, line 1).

In light of the above, it therefore would have been obvious to one of ordinary skill in the art to use hydroxybutyl acrylate or diethylene glycol methacrylate and diethyleneglycol diacrylate in EP 465039 in order to impart curability to the liquid resin and produce cured film with good water resistance and hardness, and thereby arrive at the claimed invention.

With respect to difference (b), EP 465039 discloses forming image on substrate but there is no explicit disclosure that the substrate comprises ink-receiving layer.

Ito et al. disclose ink jet recording material comprising ink receiving layer comprising polyester or styrene-acrylic copolymer. The motivation for using such recording medium is that it is superior in waterfastness with high gloss on the surface and is capable of producing high quality and high grade prints (col.1, lines 42-47, col.2, lines 49-53, col.5, lines 66-67, and col.6, lines 3 and 7),

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In light of the motivation for using recoding medium with ink-receiving layer disclosed by Ito et al. as described above, it therefore would have been obvious to one of ordinary skill in the art to form image in EP 465039 on substrate which comprises such ink-receiving layer in order to produce high quality and high grade prints, and thereby arrive at the claimed invention.

6. Claims 12-13 are rejected under 35 U.S.C. 103(a) as being unpatentable over EP 465039 in view of Kurihashi et al. and Ito et al. as applied to claims 7-8 above, and further in view of Asai et al. (U.S. 5,446,082).

The difference between EP 465039 in view of Kurihashi et al. and Ito et al. and the present claimed invention is the requirement in the claims of glass transition temperature of the polyester present in ink-receiving layer.

Asai et al., which is drawn to ink jet recording medium, disclose use of polyester in ink-receiving layer wherein the polyester has glass transition temperature of 40-70 °C in order to produce images with good heat resistance and blocking resistance (col.3, lines 49-55).

In light of the motivation for using polyester with specific glass transition temperature disclosed by Asai et al. as described above, it therefore would have been obvious to one of ordinary skill in the art to use such polyester in EP 465039 in order to produce printed product with good heat resistance and blocking resistance, and thereby arrive at the claimed invention.

7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Callie E. Shosho whose telephone number is 703-305-0208. The examiner can normally be reached on Monday-Friday (6:30-4:00) Alternate Fridays Off.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Vasu Jagannathan can be reached on 703-306-2777. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0661.



Callie E. Shosho
Primary Examiner
Art Unit 1714

CS
9/29/03